

IN THE CLAIMS

Please amend the claims as follows:

Claims 1-4 (Cancelled).

Claim 5 (Currently Amended): ~~A method according to claim 1, further comprising the steps of~~

A multi-mode block-coded modulation/demodulation method for a transmission system equipped with a multi-mode encoder and a multi-mode decoder, comprising the steps of:

determining a transmission mode based on transmission data contents, an amount of data and a required transmission quality;

making changes to a number of code levels, the multi-mode encoder, a modulation system and a signal point assignment method based on the mode;

encoding the data to obtain a signal;

sending the signal;

receiving the signal;

determining a number of trellis states;

decoding the received signal using maximum-likelihood decoding;

inserting information on a transmission mode in a multi-mode digital signal using one or more codes of levels as an encoded mode index or indices[[,]]; and

changing codes of other levels according to the transmission mode.

Claim 6 (Previously Presented): A method according to claim 5, further comprising using a mode-index code as a highest level code and using the highest level code for a first bifurcation in a set-partitioning method.

Claim 7 (Currently Amended): ~~A method according to claim 1, further comprising the step of~~

A multi-mode block-coded modulation/demodulation method for a transmission system equipped with a multi-mode encoder and a multi-mode decoder, comprising the steps of:

determining a transmission mode based on transmission data contents, an amount of data and a required transmission quality;

making changes to a number of code levels, the multi-mode encoder, a modulation system and a signal point assignment method based on the mode;

encoding the data to obtain a signal;

sending the signal;

receiving the signal;

determining a number of trellis states;

decoding the received signal using maximum-likelihood decoding; and

assigning different bit series to each of identical signal points for different modulation in a signal space diagram to compose a multi-mode system.

Claim 8 (Previously Presented): A method according to claim 5, further comprising the steps of assigning different bit series to each of identical signal points for different modulation in a signal space diagram to compose a multi-mode system on an encoding side, and on a decoding side using a mode decoding result to determine multiple bit series assignments to identical signal points on a signal space diagram.

Claim 9 (Cancelled).

Claim 10 (Previously Presented): A method according to claim 5, further comprising the steps of using a mode-index code as a highest level code and, decoding the highest level code using a multistage decoding method to determine a mode and using a decoded signal for lower-level decoder switching in the multistage decoding method.

Claim 11 (Cancelled).

Claim 12 (Currently Amended): ~~A method according to claim 1~~

A multi-mode block-coded modulation/demodulation method for a transmission system equipped with a multi-mode encoder and a multi-mode decoder, comprising the steps of:

determining a transmission mode based on transmission data contents, an amount of data and a required transmission quality;

making changes to a number of code levels, the multi-mode encoder, a modulation system and a signal point assignment method based on the mode;

encoding the data to obtain a signal;

sending the signal;

receiving the signal;

determining a number of trellis states; and

decoding the received signal using maximum-likelihood decoding,

wherein for transmission from a mobile station in a wireless communications system, transmission modes are switched in accordance with movement status which represents that the mobile station is moving or at rest.

Claim 13 (Currently Amended): ~~A method according to claim 1~~

A multi-mode block-coded modulation/demodulation method for a transmission system equipped with a multi-mode encoder and a multi-mode decoder, comprising the steps of:

determining a transmission mode based on transmission data contents, an amount of data and a required transmission quality;

making changes to a number of code levels, the multi-mode encoder, a modulation system and a signal point assignment method based on the mode;

encoding the data to obtain a signal;

sending the signal;

receiving the signal;

determining a number of trellis states; and

decoding the received signal using maximum-likelihood decoding,

wherein for transmission from a mobile station of a mobile wireless communications system, transmission modes are switched in accordance with a noise strength of the mobile station.